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ABSTRACT

The purpose of the observational system presented here is to record the behavioral interactions between infant and mother, focusing on the sequential and contextual features of the social communication patterns accessible through direct home observation of mothers and their 3- to 4-month-old infants. The present system of continuous data recording allows responses in sequence rather than time to be the units of behavior, thus preserving the actual periodic features of individual behavior and temporal characteristics of interactional exchanges. Recorded are frequency, duration, sequence, inter-response times and simultaneous occurrence of specified maternal and infant behavioral variables. As the infant-mother pair is observed, the behaviors of each continuously qualify as one of a defined set of possible 2- or 3-digit coded behavior patterns, each composed of combinations of basic behavior categories, definitions of which fill one half of the manual. This system uses the Data-Myte or any similar mechanical event recorder, handheld and connected to a cassette recorder worn on the shoulder, giving the observer complete mobility. The observer records (1) the setting, (2) infant arousal state, (3) maternal proximity, (4) maternal behavior and (5) infant behavior. Each session consists of a feeding, a bath and playtime. The manual includes detailed instructions on equipment and general setup. A sample Interview and Rating Scale Form is included for use in writing up developmental and other background data, as well as for recording measurements of subject performance. (BF)

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DEMONSTRATION AND RESEARCH CENTER FOR EARLY EDUCATION

OBSERVATION MANUAL FOR ASSESSMENT OF BEHAVIOR SEQUENCES BETWEEN INFANT AND MOTHER

Barbara Strain and Peter Vietze

Volume 6, Number 8, 1974 DARCEE Papers and Reports

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INTRODUCTION

The purpose of this observational system is to record continuously the behavioral interactions between infant and mother in their sequence and context of occurence. Sequence is defined as the observed order of occurence of focal categories (patterns) across elapsed units of real time; by context is meant the specific behaviors and proximity of one member of the dyad that both precede and follow the behavior of the other member. The focus of this category system is on the sequential and contextual features of the social communication patterns accessible through direct observation in homes of mothers and their three-to four-month-old infants.

The data collected will not record the complete "stream of behavior" of either infant or caretaker. Rather, the protocol will give information as to the frequency, duration, sequence, inter-response times (latencies), and simultaneous occurence of specified maternal and infant behavioral variables, with variables directly tied to the theoretical and empirical literature presented in earlier sections of this paper. The present system of continuous data recording allows responses in sequence rather than time to be the units of behavior, thus preserving the actual periodic features of individual behavior and temporal characteristics of interactional exchanges.

OBSERVING AND CODING BEHAVIORS IN PATTERNS

The continuous observation of infant behaviors and maternal behaviors directed to infant is conceptualized in this coding system as the construction of sequences of mutually exclusive and exhaustive patterns of behavior (see pp. 5-6). These patterns are composed of combinations of basic behavior categories (see pp. 3-4). As the infant-mother pair is observed, the observable behaviors of each continuously qualify as one of a defined set of possible behavior patterns. Following are outlines of the basic behavior categories and behavior patterns for infant and mother with their appropriate 2-digit and 3-digit numerical codes.

OUTLINE OF INDIVIDUAL SETTING AND BEHAVIORAL CATEGORIES INCLUDED IN CODING SYSTEM

I. Caretaking settings of maternal behavior

- A. No caretaking routines performed by mother
- B. Feeding
- C. Bathing/Dressing/Diapering
- D. Putting to sleep

II. Infant behaviors

- A. Nondistress vocalizations
- B. Distress vocalization
- C. Visual attention to mother
- D. Smile
- E. Infant response(s) directed to inanimate objects
- F. Changes in state of infant arousal
  1. Active-awake
  2. Quiet-awake
  3. Drowsy
  4. Sleeping

III. Maternal behaviors

- A. Verbalization to infant
- B. Visual attention to infant
- C. Smile (and look) at infant
- D. Tactile/vestibular "play stimulation" of infant

E. Behaviors directed to infant while stimulating with inanimate object.

F. Proximity relative to infant's location

1. Holds or provides major support for infant
2. Within arm's reach of infant
3. In same room with infant and out of arm's reach of infant
4. Not in same room with infant

OUTLINE OF INFANT AND MATERNAL BEHAVIOR PATTERNS CODES; SETTING, INFANT STATE, AND MATERNAL PROXIMITY CODES

I. Infant Behavior Pattern Codes

A. 2 Digit Codes		B. 3 Digit Object Codes	
1. Vocalize	6-1	1. Vocalize/Interact with object	6-1-0
2. Look at Mother	6-2	2. Look at M/Interact with object	6-2-0
3. Look at Mother/Smile	6-3	3. Look at M/Smile/Interact w/Obj.	6-3-0
4. Voc/Look at Mother	6-4	4. Voc/Look at M/Interact w/Obj.	6-4-0
5. Voc/Look at M/Smile	6-5	5. Voc/Look at M/Smile/Inter. Obj.	6-5-0
6. Voc/Smile	6-7	6. Voc/Smile/Interact with Obj.	6-7-0
7. Smile	6-8	7. Smile/Interact with Object	6-8-0
8. Distress Vocalization	6-9	8. Distress Voc/Interact w/Obj.	6-9-0
9. Distress Voc/Look at M	6-0	9. Distress Voc/Look M/Interact Obj.	6-0-0
10. None of above patterns	6-6	10. None of above patterns/Inter. Obj.	6-6-0

II. Maternal Behavior Pattern Codes

A. 2 Digit Codes		B. 3 Digit Object Codes	
1. Vocalize	5-1	1. Voc/Stimulate Infant w/Object	5-1-0
2. Look at Infant	5-2	2. Look at I/Stimulate with Object	5-2-0
3. Look at Infant/Smile	5-3	3. Look at I/Smile/Stim. w/Object	5-3-0
4. Voc/Look at Infant	5-4	4. Voc/Look at I/Stimulate w/Object	5-4-0
5. Voc/Look at Infant/Smile	5-6	5. Voc/Look at I/Smile/Stim. w/Obj.	5-6-0
*6. Voc/Tactile-Vestibular play	5-7	*6. Voc/Tactile play/Stim. w/Obj.	5-7-0
7. Look at I/Smile/Tactile play	5-8	7. Look at I/Smile/Tactile play/ Stimulate w/Object	5-8-0
8. Voc/Look at I/Smile/Tactile play	5-9	8. Voc/Look at I/Smile/Tactile play/ Stimulate w/Object	5-9-0
*9. Tactile play	5-0	*9. Tactile play/Stimulate w/Object	5-0-0
10. None of the above patterns	5-5	10. None of above patterns/Stimulate with Object	5-5-0

* May or may not be accompanied by mother's looking at infant.

III. Setting Codes (2 digits)

1. No Caretaking	1-3
2. Feeding	1-2
3. Bathe/Diaper/Dress	1-1
4. Put to Sleep	1-0

IV. Infant State Codes (2 digits)

1. Active-Awake	2-3
2. Quiet-Awake	2-2
3. Drowsy	2-1
4. Asleep	2-0

V. Maternal Proximity Codes (2 digits)

1. Holds	3-3
2. Within arms' reach	3-2
3. In room with infant	3-1
4. Not in room w/infant	3-0

OBSERVATION EQUIPMENT

The present category system will be applied to the Data-myte System Model DAK-8C (Electro/General Corporation) and could be used with any mechanical event recorder of similar capacity. The portable observation recorder unit of the Data-myte system consists of a handheld, 12-button numberic keyboard connected by cable to a cassette tape recorder which is worn over the shoulder. Both units combined weigh less than seven pounds. The recorder operates on rechargeable batteries, giving the observer complete mobility.

The keyboard unit contains a digital clock which automatically records elapsed time, in seconds, for each instance the "Enter" key is depressed. The clock capacity is 9999 seconds. For observations which exceed this capacity (2 hours, 46 minutes), the clock resumes cumulative timing again, at 0000 seconds.

To operate, the observer presses the appropriate keyboard push-buttons, one at a time, to generate the record. (See Fig. 1)

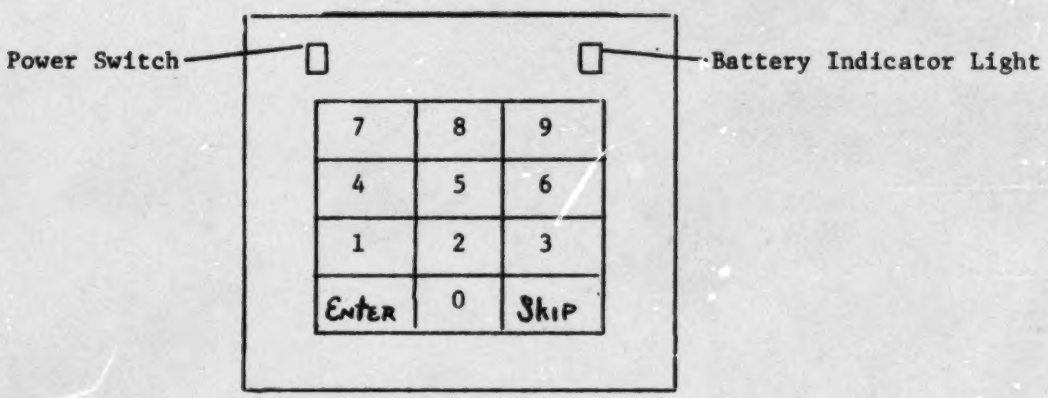

Figure 1. Keyboard on Data-myte DAK-8C

As each key is depressed, a coded audio signal representing that key is recorded on the cassette tape. There are 10 numeric keys (0-9), an "Enter" key, and a "Skip" key. The "Enter" key provides end-of-pattern code and signals the recording of elapsed time in seconds. The "Skip" key places a special signal on the protocol and is used by the observer to indicate inaccurate entries as they occur (if observer is aware of the mistake at the time). The observer must pause .5 second between pressing "Enter" for one pattern and entering the first digit of the next pattern. The "practical" maximum rate of character entry is five characters per second.

While numbers of any length may be recorded, the present category system is designed to keep constant the number of digits (two or three) in each behavior pattern entered to facilitate human and computer reading of the observational record. The numbers which index the categories in the digits of this coding system have been selected so that the most frequently recorded events conform easily to finger-keyboard placement. Also symmetry between infant and maternal behavior category numbers has been attempted to provide some internal logic to the code.

There are four types of information entered:

1. Information specific to each dyad
   a. Identification number for each family and observer
   b. Date and actual clock time of observation
   c. Beginning, Interrupting, and Terminating Codes for the sessions
2. Setting/Infant State/Maternal Proximity codes
3. Infant behavior patterns
4. Maternal behavior patterns

OUTLINE OF CODES FOR GETTING ON AND OFF DATAMYTE

I. In Lab prior to each home observation visit

A. Turn power "on"

1. 12 skips (Enter). Do this twice to make sure cassette tape is tightened on reel. Pressing Enter key starts clock at 0000 seconds.

2. 4 digit identification code (Enter)
   Digits 1 & 2: Subject numbers: 01 through 24
   Digits 3 & 4: Observer numbers: 01 = B.S.; 02 = D.B.

3. 8 digit Date Code (Enter)
   Digits 1 & 2: Month (01 through 12)
   Digit 3: skip key
   Digits 4 & 5: Date (01 through 31)
   Digit 6: skip key
   Digits 7 & 8: Year (73)

B. Turn power "off". This always resets internal clock to 0000 seconds.

II. In Home prior to beginning actual observation session

A. Turn power "on".

1. 5 digit Clock Time Code (Enter)
   Digits 1 & 2: Hour (01 through 12)
   Digit 3: skip key
   Digits 4 & 5: Minute (00 through 59)

2. 3 digit BEGINNING OF SESSION CODE "777(Enter)"

B. Turn power "off" (again resets clock to zero point).

III. Beginning the observation session in the home

A. Turn power "on". In rapid succession enter the following to initialize the environmental conditions and the behaviors of the dyad when the observation session is beginning:

1. 2 digit SETTING CODE (All 4 Setting Codes begin with "1").

2. 2 digit INFANT STATE CODE (All 4 State Codes begin with "2").

3. 2 digit MATERNAL PROXIMITY CODE (All 4 Proximity Codes begin with "3").

4. 2 or 3 digit MATERNAL BEHAVIOR CODE (All Mother Codes begin with "5").

5. 2 or 3 digit INFANT BEHAVIOR CODE (All Infant Codes begin with "6"). . .

6. Begin continuous recording of pattern changes in behaviors of

Mother and Infant.

IV. Interrupting the session (if infant falls asleep)

A. Power is "on"

1. 3 digit TEMPORARY END CODE "888 (Enter)"

B. Turn power "off". This will reset the cumulative time to 0000 seconds.

V. Resuming the session after interruption break

A. Turn power "on"

1. 3 digit RESUMPTION OF SESSION CODE "999 (Enter)"

B. Turn power "off" to reset clock

C. Turn power "on" and follow same rules as for Beginning the Observation Session

1. 2 digit SETTING CODE

2. 2 digit INFANT STATE CODE

3. 2 digit MATERNAL PROXIMITY CODE

4. 2 or 3 digit MATERNAL BEHAVIOR CODE

5. 2 or 3 digit INFANT BEHAVIOR CODE

6. Begin continuous recording of pattern changes by Mother and Infant.

VI. Ending a 90 minute observation session

A. Power is "on"

1. 3 digit END OF SESSION CODE "000 (Enter)"

B. Turn power "off"

C. Turn recorder off, disconnect recorder from keyboard, rewind tape.

TEMPORAL INFORMATION FROM OBSERVATIONS

Through continuous recording of behavioral categories on the Data-myte system the following temporal variables can be reduced:

1. Frequency and Duration. Each infant and maternal pattern of behavior entered is recorded as a discrete unit. Therefore, the frequency and duration (in seconds) of each individual category as well as individual patterns are preserved.
2. Sequence. The temporal order in which behavioral patterns are observed is recorded, giving information concerning the sequence of behavior patterns for each member of the mother-infant dyad as well as the sequences of behavior patterns between mother and infant (i.e. interaction).
3. Latency and Simultaneous time. The latency or time between onsets of patterns in a sequence as well as the duration of simultaneous occurence of behavior patterns of infant and mother will be recorded in seconds of elapsed time.
4. With the present system, it is not possible to record simultaneous change of patterns for mother and infant. As patterns for each actor are entered individually, a sequential ordering is imposed upon the dyadic interaction. However, pattern changes observed to occur simultaneously and entered in rapid succession will be separated by no more than a one-second duration.

GUIDELINES FOR OBSERVERS

General Procedures

1. Before each visit equipment should be completely checked to insure battery is fully charged and cassette tape is feeding properly through recorder. This check occurs as observer is entering introductory information on each dyad's cassette tape in the laboratory. An extra set of charged batteries and a blank, pre-wound cassette tape should be taken on each visit. Observer should be alert to equipment functioning (battery light, tape advancement) during observation sessions.

2. Codes for identifying each session as well as for beginning, interrupting, and terminating a session should be entered carefully. Accuracy is critical for subsequent data reduction.

3. The maximum length attempted for each observation session is 90 minutes of time when infant is awake. Times scheduled for observations depend on the mother's routines, her estimation of the optimal time for observing her infant awake and alert, and the length of each individual infant's sleep-wake cycle. While session lengths will vary, there must be at least 70 minutes of observation time for a dyad to be included in the study.

4. As arranged in a telephone call to each mother early on the day of the scheduled visit, the observer arrives at the home just prior to the infant's waking. Each session consits of observing a feeding, a bath (dependent on infant's health), and playtime. The observer's primary interest is the infant in interaction with mother as well as alone. Therefore, the observer stays in close proximity to infant, keeping the infant in sight throughout the session.

5. Throughout each visit the observer is alert to information included on the rating scales, such as predominance of television, number of toys in infant's visual field, mother's motor activity level, etc. Also observer collects required information from mother such as age of infant's first smile, current weight, etc. See Interview and Rating Scale Information form following Guidelines for Observers.

Adaptation Procedures

1. Observer initially explains the rationale, purpose, and procedures of this observational study and demonstrates the equipment to mother.
2. Observer asks mother not to talk to her during the data recording and to save any questions for discussion after the session. Observer does not initiate any interactions with mother or infant and responds as briefly as is feasible to mother's initiations during the session.
3. It is emphasized to mothers that the data recording system is designed for observing behavior of mother and infant. Interaction of fathers, visitors, etc. with infants is therefore discouraged. See next section for rules concerning interactions with a third person which occur despite observer's explanation.

Coding Behavior Directed to Infant by Person(s) Other Than Mother

1. If mother and one or more persons are interacting simultaneously with infant, continue to code only mother's behaviors directed to infant.
2. Behavior directed to infant by someone other than mother (father, neighbor, visiting adult or child) when mother is not interacting with infant is coded using patterns as defined for maternal behaviors. However,

the initial digit "5" is changed to an "8" in all behavior patterns.

3. Do not record behavior unless the proximity of the "8" person to infant is Holds or Within Arm's Reach.

4. Do not record proximity status or proximity changes of the "8" person.

5. Following the observation session, observer marks the portion of teletype output tape during which a third person interacted with infant and records the identity of this person.

6. During the session, if interaction with a third person continues for longer than 10 minutes, discontinue recording until observation of only the mother-infant dyad is possible.

Coding Behavior of Infant Directed to Persons Other Than Mother

1. If mother and one or more persons are interacting together with infant, and if mother and other persons are the observed objects of the infant's responses, code infant patterns as if directed to the mother alone.

2. If another person alone ("8") is the object of the infant's responses and mother is not interacting with infant, code infant's responses to the "8" person as if "8" were the mother. The final protocol of behavior sequences will indicate that the person directing behaviors to the infant was not the mother.

Coding Natural Interruptions in Interaction

1. If mother receives a telephone call or a visitor, the observer continues to code all infant behavior and only those maternal behaviors directed to infant.

2. If infant falls asleep during the observation session follow the coding procedures for temporarily ending an observation outlined previously.

Coding Mother's Exiting or Entering Room Where Infant Is Located

1. When mother leaves room in which infant is located, enter the code sequence of 5-5 (No pattern observed) followed by 3-0 (Mother is not in room with infant).

2. When mother re-enters infant's room, code her final proximity to infant followed immediately by her current behavior pattern.

Coding Duration of Behavior Patterns Composed of Vocal or Visual Categories

1. Verbalizations of mother to infant as well as nondistress and distress vocalizations of infant are coded as continuous unless pauses of more than two seconds occur in the stream of sound. Observer counts silently when a pause begins and if sound does not resume, observer enters the current (non-vocal) pattern of behavior. This process becomes automatic with training.

2. For visual behaviors of infant and mother, one-second breaks in visual attention are not coded. In the same sense, fleeting glances are not coded as visual attention.

INTERVIEW AND RATING SCALE

INFORMATION ON INFANTS IN HOME OBSERVATIONS

Observer_____

Infant_____Sex_____ Subject No._____

Date of Observation_____

Birthdate_____

Age at Observation_____

Parents_____ Address_____

Mother's Age____ Education (years)_____ Profession_____ Subject No.___

Father's Age___ Education (years)_____ Profession_____

Birthweight_____ Current weight_____

Perinatal Complications?_____

Age of first smile_____

Situations which elicit most vocalization (social/nonsocial?)_____

_____

Mode of feeding_____

EnFace during: feed_____ bath_____ changing_____

Observed motor developments:

Turning over _____ Other_____
Pulling up with help _____
Lifting head when prone _____ _____
Crawling/swimming movements when prone _____
Grasping objects _____

Persons other than mother interacting with infant during observation; Identity and approximate length of interaction

_____

_____

Type of home visited: Apartment ____ Duplex-small home (5 rms.)_____
Larger home (more than 5 rooms)_____

Mother_____

Infant_____

Sex_____ Date_____

Age_____ Observer_____

Summary Rating Sheet

I. MATERNAL RATINGS (Pedersen):

1. Physical Involvement & Closeness.....____
2. Intensity of Positive Emotional Expression.....____
3. Intensity of Negative Emotional Expression.....____
4. Animation of M's Voice.....____
5. Characteristic Intensity of M's Voice.....____
6. Sensitivity & Responsiveness to Positive Social Behavior.____
7. Appropriateness of M's Behavior Regarding Feeding.....____
8. Appropriateness of M's Behavior to B's Needs & Rhythms...____
9 Latency of Maternal Response to Distress.....____
10. Physical Tension.....____
11. Motor Activity Level.....____
12. M's Report of Observer Influence.....____

II. INFANT RATINGS (Pedersen):

1. Alertness.....____
2. Social Interest & Responsiveness to M.....____
3. Responsiveness to the Inanimate Environment.....____
4. Irritability.....____
5. Characteristic Intensity of B Cry.....____

Summary Rating Sheet (Page 2)

6. Soothability.....P____

7. Variation of B Vocalization.....____

8. Pleasure in Physical Contact.....____

9. Motor Activity.....____

10. Use of Pacifier.....____

III. SELECTED BACKGROUND STIMULATION RATINGS (Rubenstein, et. al.)

1. Predominance of Television.....____

2. Noise Level of Home.....____

3. Distinctiveness of Auditory Stimuli.....____

4. Number of Toys in Infant's Visual Field.....___

CATEGORY DEFINITIONS

SETTING

The Setting code is entered initially and whenever a change occurs in the type of caretaking activity.

NO CARETAKING

Definition: This category indicates any type of interaction between mother and infant which does not involve any of the caretaking routines listed below or no interaction occurring between infant and caretaker.

FEEDING

Definition: Mother is feeding infant with breast, bottle, cup, spoon, or manually. Feeding begins with first mouthful infant eats and continues through any temporary breaks (getting more food, rearranging baby, etc.) and includes burping routines during or following feeding.

BATHING/DIAPERING/DRESSING

Definition: Mother is (1) bathing infant in tub, sink, or sponging infant's entire body, (2) changing infant's diaper, or (3) undressing or redressing infant. Bathing begins with undressing and includes cleaning ears and nose, drying and redressing infant.

PUTTING TO SLEEP

Definition: Mother is preparing infant for sleep: rocking, arranging crib covers, etc. This setting is defined by mother's behavior, not by cues of infant state. Infant may not

necessarily go to sleep, but mother is attempting to put infant to sleep.

INFANT BEHAVIORS

INFANT NONDISTRESS VOCALIZATION

Definition: Voiced sounds which do not indicate discomfort or distress, consisting of discrete sounds (usually vowel-like but consonants also occur) on a single breath, regardless of length of inflection.

Coded (Examples)	Not Coded (Examples)
All vocal sounds including vocal sounds emitted while infant is being fed solids.	Sounds which occur simultaneous with sucking bottle or pacifier.
Nonvocal sounds: lip spitting grunts gutteral sounds sighing	Nonvoluntary, nonvocal sounds: coughs burps wheezes sounded yawns sneezes choking hiccups rhythmic nonvocal noises accompanying breathing or swallowing
Laughing - squealing	

Rules:

1) In terms of duration of sound, any discrete voiced nondistress sound as defined above or repeated discrete sounds with short pauses not greater than 2 seconds between them, each on a fresh intake of air, is entered as one unit.

2) In terms of intensity of sound, nondistress sounds may be soft and breathy (cooing) or loud and rhythmic (laughing or chortling).

INFANT DISTRESS VOCALIZATION

Definition: There are two types of distress vocalization differing in terms of intensity and facial cues.

1. Fussy sounds: high-pitched, irregular vowel sounds; may be a whimper, whine, screech, suggesting discomfort, agitation, or complaint. Corners of mouth are turned down in a slight frown and corners of eyes are wrinkled.
2. Cry sounds: loud, wailing sounds, screaming accompanied by distinct wrinkling around the eyes, tears, redness and trembling of face often present with pronounced puckering or widening of lips.

Rules:

1. In terms of duration, any instance of a distress vocalization either fussing or crying is entered as one unit, as long as individual fusses or cries are separated by pauses of 2 seconds or less.
2. If distress is in doubt, record infant sound as nondistress. Use facial cues (coloration, muscle tones, eye positions described previously) when sounds are ambiguous.

INFANT VISUAL ATTENTION TO MOTHER

Definition: Infant looks directly at mother's face or at any part of her body (shoulder, back, hand), or looks at mother's hair, clothing, or jewelry.

Rules:

1. Includes orienting, following, staring, or mutual regard.
2. Brief, fleeting, one-second glances are not scored as Visual Attention.

SMILE

Definition: Infant's mouth is open and widening. There are deep grooves or foldings from the elongated mouth to nose. Eyes may be squinting.

Rules:

1. Note that by definition infant smile does not require any accompanying visual behavior. Infant smiling to mother, to objects, or to no identifiable object will be coded. This is in contrast to maternal smiling which is coded only when mother is simultaneously smiling and looking at infant.
2. This category includes full, broad smiles and partial, momentary smiles.

INFANT RESPONSES DIRECTED TO INANIMATE OBJECTS

Definition: Infant is "interacting with an inanimate object" if he is looking at the object, mouthing, waving, banging or manipulating object. When infant is observed to be "interacting" with an object, a zero code is placed as a third digit to modify any of the 2-digit patterns which might accompany this "interaction" with object.

For example:

a. 6-1-0 Infant is vocalizing while interacting with object as defined above.

b. 6-2-0 Infant is looking at Mother while interacting with object.

c. 6-4-0 Infant is looking at Mother and vocalizing while interacting with object.

d. 6-6-0 Infant is looking at, waving, mouthing, banging, or manipulating object without positive or negative vocalizations or smiling and without directing any visual attention to mother.

Objects Coded (Examples)

Pets
Mirror (images in mirror)
T.V.
Toys
Household items
Feeding utensils
Infant's own body part (hand, feet)

Objects Not Coded (Examples)

Undefined spaces, directions
Walls
Ceilings

Rules:

1. Note that infant does not necessarily have to be in physical contact with object for this third digit "zero" code to be used. Looking at objects (mobile, television, rattle in infant's own hand, etc.) also defines an "interaction" with an object
2. The inanimate object must have definable bounds. Looking at surfaces, walls, ceilings, etc. is not coded.
3. Notice the distinction in coding between examples (a) and (b) below:
   a. If observer cannot judge whether an object held by mother or the mother herself is the focus of the infant's visual attention, code 6-2, infant looks at M rather than 6-6-0, infant looks at object.
   b. If infant is in physical interaction with an object and is also looking at mother, code 6-2-0.

INFANT STATE OF AROUSAL

Infant state is entered initially and whenever a change occurs in infant's state.

Definition: The four infant state codes indicate the existence of one of four mutually exclusive and exhaustive states of arousal. State is entered initially and then only when a change in state is observed. A code to signal onset of sleep is included. Categories have been adapted from Pedersen (1972).

ACTIVE AWAKE or ALERT ACTIVE

Definition: Both eyes open, considerable motor activity with repeated thrusting movements of extremities (more than one), spontaneous startles, reactive to external stimulation with increase in startles or motor activity, but discrete reactions difficult to distinguish because of general high activity level. Distress vocalizations commonly occur in active-awake state.

QUIET AWAKE or ALERT INACTIVE

Definition: Bright look; seems to focus attention on source of stimulation such as an object to be sucked, visual or auditory stimuli; quiet motor activity.

DROWSY

Definition: Infant's eyelids are fluttering or drooping with eyes characteristically open one-quarter or less. Eyeballs may show nystagmus. Infant's motor activity level is reduced from alert active and quiet awake states defined above.

SLEEP

Definition: Includes all nontransient sleep (including light sleep). No spontaneous activity except startles at regular intervals. Eyes are closed; breathing is rhythmic, regular for at least 60 seconds.

Rules: 1. When sleep is observed for 60 seconds, observer enters sleep code and temporarily discontinues recording until infant is awake for at least one minute.

MATERNAL BEHAVIORS

MATERNAL VERBALIZATION TO INFANT

Definition: Maternal verbalizations such as a word, sound or a series of words or sounds directed to the infant.

Coded (Examples)	Not Coded (Examples)
Baby-talk	Sneezes, coughs
Fun-like sounds ("boo," "ouch," "tsk-tsk", lip-smacking)	Talking to others, observer, or on phone
Singing, lulling-humming	
Laughing	
Whistling	
Adult-type speech	

Rules:

1. A word or sound or series of words or sounds spoken or sung by mother to infant is entered as one unit. A unit ends when a discriminable pause of more than two seconds occurs between maternal verbalizations.
2. Verbalizations recorded are only those sounds directed by mother to infant or to infant and others who may be in infant's vicinity. Direction is decided by verbal content as well as by mother's facial and/or postural orientation. Verbalizations can be directed to the infant from any proximity, including Mother's talking to infant when she is not in the same room as the infant.
3. Talking to a sleeping infant is not recorded as interest is on sounds with high probability of being received by the infant.

VISUAL ATTENTION TO INFANT

Definition: Mother looks at infant's face or any part of infant's body, hair, clothing, etc.

Rules:

1. Infant may be any distance from the caretaker, as long as mother's line of vision to infant's body is unobstructed, as for example by high crib sides, deep cradle, etc.
2. Includes orienting, following, staring, and mutual regard.
3. Brief, one-second glances are not scored as visual attention.
4. If infant is positioned on mother's shoulder (as in the usual posture for burping infant) do not assume mother is looking at infant. Code Visual Attention only if Mother's head is rotated so that she has some part of infant's body in view.

SMILES AT INFANT - WHILE LOOKING AT INFANT

Definition: Mother is directing her visual attention to her infant concurrent with widening of the mouth, a deepening of grooves from up-turned corners of mouth to wings of nose, possible raising of cheek areas, narrowing of eyes, and wrinkling in corners of eyes.

Rules:

1. Includes broad, beaming smiles as well as partial smiles.
2. Looking at infant and laughing (smiling and verbalizing) is coded as "5-6" (Mother looks, vocalizes, and smiles). Laughing without looking at infant is coded "5-1" (Mother vocalizes only).

TACTILE-VESTIBULAR PLAY

Definition: Any repeated (i.e. 3 or more kisses, bounces, jiggles, etc.) tactile or vestibular stimulation of infant by mother which has the explicit goal of alerting, amusing infant and is not part of the usual touching and moving of infant that is involved in caretaking.

Coded (Examples)	Not Coded (Examples)
Tickling, jiggling	Touching with bottle or spoon
Rubbing in order to stimulate	Propping to breast-feed
Playing "pulling-up" games	Patting-burping-rubbing infant after a feed
Repeated kissing	Rubbing with wash cloth to clean
Bouncing on knee	Rocking infant for soothing, quieting
Throwing over head	
Exercising infant's arms or legs	

Rules:

1. Includes fine body play or limb movement as in patti-cake, lifting limb and letting it fall, wiggling a limb or finger, tickling or other repetitive stimulating acts of mother such as rooting her finger over infant's body.
2. Includes gross body play in which infant's whole body is moved in play (eg. jiggling, bouncing on knee, throwing infant in air, holding overhead, rolling on bed).
3. Touching infant playfully with an inanimate object (stuffed animal, toy, peek-a-boo cloth, etc.) is scored as a tactile-vestibular play pattern with a zero in the third digit to indicate that the physical contact involves an inanimate object.
4. Includes touching infant playfully through clothing or covering.

5. Tactile-vestibular play can be gentle (low intensity) or vigorous (high intensity, abrupt stimulus change).
6. Does not include Mother's positioning infant in wind-up type of infant swing. If mother pushes or or "swings" infant herself, touching infant while swinging, this is coded as tactile-vestibular play.

BEHAVIORS DIRECTED TO INFANT WHILE STIMULATING INFANT WITH OBJECT

Definition: This category is used to modify maternal verbal, visual, smiling, and tactile-vestibular play behaviors when they occur as the mother is stimulating (or trying to stimulate) her infant with an inanimate object.

5-1-0 Mother vocalizes to infant while stimulating infant with object.

5-2-0 Mother looks at infant while stimulating infant with object.

5-4-0 Mother vocalizes, looks at infant and stimulates infant with inanimate object.

5-3-0 Mother looks at infant, smiles, and stimulates infant with inanimate object.

Rules:

1. Includes visual stimulation (waving object, pointing to object, presenting/giving object to infant, winding up infant's mobile) as well as auditory stimulation (banging, shaking or rattling, winding up a musical toy).
2. Includes physical stimulation with object for play-stimulation. Code as a tactile/vestibular play pattern with a third digit zero to indicate an object is involved.
3. Observer should code those maternal behaviors (vocal, tactile-play, visual, smile) which occur while mother is presenting or retrieving object, highlighting an object the infant already has, or directing the infant's attention to an object.

4. Turning on a television is not coded (although TV can be an object of the infant's behavior.

5. An object is anything inanimate with definable bounds.

Coded (Examples)	Not Coded (Examples)
Pets	Walls
Mirror (images in mirror)	Washcloth when it conforms to mother's hand
Commercial toys	Scenes out of windows
Feeding utensils used for sensory stimulation	
Cloth or other barrier used in peek-a-boo	
Wall hangings, pictures	
Arm of a chair	
Table top	

MATERNAL PROXIMITY TO INFANT

Maternal Proximity is entered initially and again whenever Mother changes her distance from the infant.

Definition: This code indicates the existence of one of four mutually exclusive and exhaustive categories of distance between mother and infant. Proximity is entered initially and only when a change in proximity is observed.

HOLDS INFANT/PROVIDES MAJOR POSTURAL SUPPORT

Definition: Mother supports infant's weight either at some distance from her body or close to her body, using both hands and/or her body.

Rules:

1. Includes mother's supporting an infant while holding infant in seated position on her lap, supporting infant on her hip, or supine or prone on her outstretched arms.
2. Includes cuddling, cradling, or simple holding.
3. Includes providing major postural support to infant while infant is in bath tub, on couch, etc.

MOTHER WITHIN ARM'S REACH OF INFANT

Definition: Mother is touching infant or part of infant's body, clothing, or covering or is located such that she can touch the infant by bending, stooping, or reaching out.

MOTHER IN ROOM WITH INFANT

Definition: Mother is in the room in which infant is located or is entering this room but is not within her arm's reach of the infant.

MOTHER NOT IN ROOM WITH INFANT

Definition: Mother is not in room in which the infant is located or is exiting this room. Always enter "5-5" (no maternal behavior pattern observed) immediately before "3-0" (Mother is not in room with infant).